

We claim:

1. A pouch battery comprising an electrode assembly, said assembly formed by respectively overlaying a sheet cathode, a sheet separator and a double-sided sheet anode to form a stacked structure, and subjecting the stacked structure to multiple folds, wherein the initial fold comprises folding the cathode in half around the double-sided anode so as to surround the respective upper and lower active anode surfaces thereof.
2. A pouch battery according to claim 1, wherein the anode comprises a single sheet current collector whose dimensions match those of the cathode when folded in half.
3. A pouch battery according to claim 2, wherein the cathode and separator are substantially the same size and shape.
4. A pouch battery according to claim 1, wherein during the initial fold the cathode is folded midway along its length, so that the fold line extends perpendicular to its length.
5. A pouch battery according to claim 1, wherein one or more subsequent folds is made with the fold line extending perpendicular to the original length of the stacked structure and its overall length is halved at each fold.
6. A pouch battery according to claim 5, wherein the one or more subsequent folds is made upon the same side of the stacked structure.
7. A pouch battery according to claim 1, wherein up to 5 or 6 folds are made in total.
8. A pouch battery according to claim 1, wherein the battery capacity exceeds 18Ah.
9. A pouch battery according to claim 1, wherein the cathode comprises a sheet current collector and a cathode material layer.
10. A pouch battery according to claim 9, wherein the cathode has an active surface on only one side thereof, formed by the cathode material layer.

11. A pouch battery according to claim 1, wherein the total cathode and anode capacities are roughly matched to produce a balanced cell.
- 5 12. A pouch battery according to claim 1, which comprises a primary lithium/solid cathode cell.
13. A pouch battery according to claim 1, wherein the cathode comprises carbon monofluoride.
- 10 14. A pouch battery according to claim 1, in which the double-sided anode comprises a single sheet current collector and one or more anode material layers forming said upper and lower active surfaces.
- 15 15. A pouch battery according to claim 14, wherein said layers have been attached together or merged together or otherwise combined together to form a single integral anode.
- 16 16. A pouch battery according to claim 15, in which the double-sided anode comprises a current collector in the form of a mesh or grid with lithium foil occupying the openings thereof to form a double-sided lithium anode.
- 20 17. A pouch battery according to claim 14, wherein there is only one anode material layer, which is effectively a single layer of lithium metal having upper and lower active surfaces.
- 25 18. A pouch battery according to claim 14, wherein the loading of the cathode material layer is selected so that the cathode capacity/cm² is about half that of the anode capacity/cm².
19. A method of manufacturing a pouch battery comprising the steps of:
 - 30 overlaying a sheet cathode, a sheet separator and a double-sided sheet anode, respectively, to form a stacked structure;
 - folding the cathode in half around the double-sided anode so as to surround the respective upper and lower active surfaces thereof;
 - 35 subjecting the folded sheets to one or more further folds to form an electrode assembly; and,

forming a pouch battery by sealing the electrode assembly in an envelope.

20. A method according to claim 19, further comprising an electrolyte filling stage.
- 5 21. A method according to claim 19, wherein during the initial fold the cathode is folded midway along its length, so that the fold line extends perpendicular to its length.
22. A method according to claim 19, wherein one or more subsequent folds is made with the fold line extending perpendicular to the original length of the stacked structure and its overall length is halved at each fold.
- 10 23. A method according to claim 22, wherein the one or more subsequent folds is made upon the same side of the stacked structure.
- 15 24. A method according to claim 19, wherein the total cathode and anode capacities are roughly matched to produce a balanced cell.
25. A method according to claim 19, wherein the loading of the cathode material layer is selected so that the cathode capacity/cm² is about half that of the anode capacity/cm².
- 20 26. A method according to claim 19, wherein the pouch battery comprises a primary lithium/solid cathode cell.
27. A method according to claim 19, wherein the cathode comprises carbon monofluoride.
- 25 28. A pouch battery in which cathode, separator and anode sheets have been respectively overlaid on one another to form a stacked structure, and the structure has been successively folded in half so that its length is halved at each fold, each fold being made upon the same side of the structure with the fold lines extending perpendicular to the original length.
- 30 29. A primary lithium/solid cathode pouch battery comprising an electrode assembly formed by respectively overlaying a sheet cathode, a sheet separator and a double-sided sheet anode to form a stacked structure, and subjecting the stacked structure to multiple folds, wherein the initial fold
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comprises folding the cathode in half around the double-sided anode so as to surround the respective upper and lower active anode surfaces thereof, and wherein one or more successive folds comprises folding the stacked structure so its overall length is halved with each fold, the fold lines being made perpendicular to that length.